

REMARKS

By this Amendment, Applicants have: canceled claims 1-4 and 6, without prejudice or disclaimer of the subject matter contained therein; amended claims 5, 7-9, and 12 to more appropriately claim the invention and/or correct typographical errors; and added new claims 13-17. No new matter has been added. Claims 5 and 7-17 remain pending.

In the Office Action dated August 9, 2004, the Examiner: objected to the title of the application; objected to claims 5 and 9 for reciting a term without antecedent basis; rejected claims 1-3 under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 6,038,156 ("*Inam*"); rejected claim 4 under 35 U.S.C. § 103(a) as unpatentable over *Inam*; rejected claims 5-10 under 35 U.S.C. § 103(a) as unpatentable over *Inam* in view of U.S. Patent No. 4,675,783 ("*Murase*"); and indicated claims 11 and 12 were allowable.

Applicants thank the Examiner for allowing claims 11 and 12.

TITLE OF APPLICATION

As shown above in the **Amendments to the Specification** section, Applicants have amended the title of the application to --COOLING SYSTEM FOR POWER CONVERSION DEVICE--. Applicants therefore request the Examiner to withdraw his requirement for a new title.

OBJECTION TO CLAIMS 5 AND 9

Regarding the Examiner's objection to claims 5 and 9, on page 2 of the Office Action, for reciting "said semiconductor elements" without antecedent basis, Applicants

can not find a recitation for "said semiconductor elements" in original claims 5 and 9. Accordingly, Applicants assume that the objection was a typographical error and correction of claims 5 and 9 is not required.

REJECTION OF CLAIMS 1-4 AND 6

Applicants have canceled claims 1-4 and 6. Accordingly, the rejection of claims 1-4 and 6 are moot.

REJECTION OF CLAIMS 5 AND 7

Applicants respectfully traverse the rejection of claims 5 and 7 under 35 U.S.C. § 103(a) as unpatentable over *Inam* in view of *Murase* because the cited references fail to teach or suggest, separately or in combination, each and every element recited in the claims.

Particularly, *Inam* merely discloses an inverter 110 with primary coils XP1 and XP2 of a transformer 116 coupled to switches 118 and 120 via heat sinks 122 and 124 (col. 4, line 63 to col. 5, line 11). Switch 118 may be mounted via wedges 210 or 260 into a heat sink 220 or 270, respectively (Figs. 4-7; col. 6, lines 54-59). *Murase* merely discloses arranging heat pipes 2 on block 1 in a zig-zag form (Fig. 4A-6B; col. 3, lines 8-17). A semiconductor device is mounted on block 1 and cooled by heat pipes 2. (Fig. 4B; col. 2, lines 53-57).

Neither *Inam* nor *Murase* teaches or suggests, separately or in combination, at least a power conversion device including a plurality of semiconductor elements that are divided into each phase or into a positive side and a negative side, where the sets of divided semiconductor elements are mounted on a cooling unit such that a set of

divided semiconductor elements for the same phase or same side is arranged in row fashion in a direction of flow of a cooling current, as recited in current claim 5. Further, *Inam* and *Murase* do not teach or suggest, separately or in combination, at least a power conversion device including a heat sink section of a cooling unit having a box shape with coolant sealed inside, as recited in claim 7.

Accordingly, the rejection of claims 5 and 7 under 35 U.S.C. § 103(a) as unpatentable over *Inam* in view of *Murase* should be withdrawn.

REJECTION OF CLAIMS 8-10

Applicants respectfully traverse the rejection of claims 8-10 under 35 U.S.C. § 103(a) as unpatentable over *Inam* in view of *Murase* because the cited references fail to teach or suggest, separately or in combination, each and every element recited in the claims.

Particularly, *Inam* and *Murase* fail to teach or suggest, separately or in combination, a power conversion device including: a heat sink section of a cooling unit constructed so that semiconductor elements can be mounted on a front face and a rear face, so that a set of semiconductor elements that constitutes one set of power conversion circuits is mounted on one face, while a set of semiconductor elements that constitutes another set of power conversion circuits is mounted on the other face, as recited in claim 8; a plurality of semiconductor elements divided into each phase, so that sets of semiconductor elements of different power conversion circuits in a first set of power conversion circuits are mounted and arranged, alternately with sets of semiconductor elements of different power conversion circuits in a second set of power

conversion circuits, for each phase on one face of a cooling unit, as recited in current claim 9; and semiconductor elements of different height for each power conversion circuit, such that a step is provided in a semiconductor mounting face of a cooling unit so that heights of electrical connection terminals of the semiconductor elements are equal, as recited in claim 10.

On page 4 of the Office Action, the Examiner appears to admit that the prior art of record fails to teach at least the above elements recited in claims 8-10. For example, rather than relying upon the disclosure of a cited reference or what is well-known to one of ordinary skill in the art, the Examiner alleges that, according to *In re Japikse*, it would have been obvious to one having ordinary skill in the art at the time of the invention to have placed a heat sink in any position, including its height needed, since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 37 C.C.P.A. 1026 (1949), 86 U.S.P.Q. 70.

Applicants object to the Examiner's incorrect characterization of claims 8-10 as simply a "rearranging of parts." Further, even if claims 8-10 just recite a rearranging of parts (which they do not), *In re Japikse* does not hold that "rearranging parts of an invention involves only routine skill in the art." In contrast, *In re Japikse* holds that "there would be no invention in shifting [a] starting switch disclosed by [prior art] to a different position since the operation of the device would not thereby be modified." *In re Japikse*, 37 C.C.P.A. at 1031. That is, rearranging of parts that would not modify the operation of a device might be considered non-inventive. However, rearranging of parts to change or enhance the operation of a device would be inventive.

Accordingly, the rejection of claims 8-10 under 35 U.S.C. § 103(a) should be withdrawn.

AMENDMENT TO CLAIM 12

Applicants have amended allowed claim 12 to correct a minor typographical error. Applicants request the Examiner enter the minor correction to claim 12.

NEW CLAIMS 13-17

Applicants have added new claims 13-17. Claims 14-17 are based on canceled claims 1-4. Claims 13-17 are allowable at least by virtue of their dependence upon allowable claims 5 and 7-9, in addition to the patentable subject matter respectively recited therein.

CONCLUSION

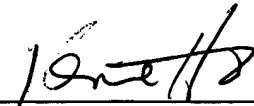
In view of the foregoing, Applicants respectfully request reconsideration and reexamination of this application and the timely allowance of pending claims 5 and 7-17.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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